Loss Rate Simulation Results

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1 Loss Rate Simulations

Parameters used in simulations:

- 5000 particles
- 600 steps with 10^5 in each (about 20 mins)
- $\sigma_y = 0.06$ [cm]
- $L = 200$ [cm], $I = 0.5$ [A], $\beta = 0.2$

Normalized (to intensity without HEBL) intensity plots for $r_b = 3.5, 3.75, 4.0, 4.5\sigma_y$ are shown on Figs. 2, 3, 4, 5. Ideal case corresponds to ideal HEBL, radial corresponds to HEBL with disturbed profile (Fig. 1). Comparison with experemental data is shown on Fig. 6. Number of lost particles as a function of amplitude Fig. 7.

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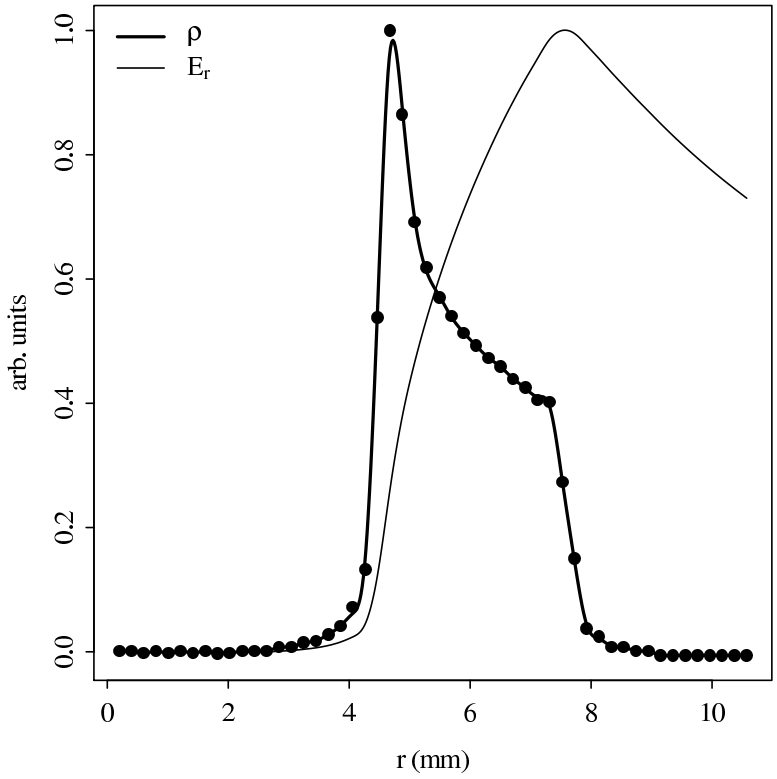

Figure 1: Disturbed HEBL profile.

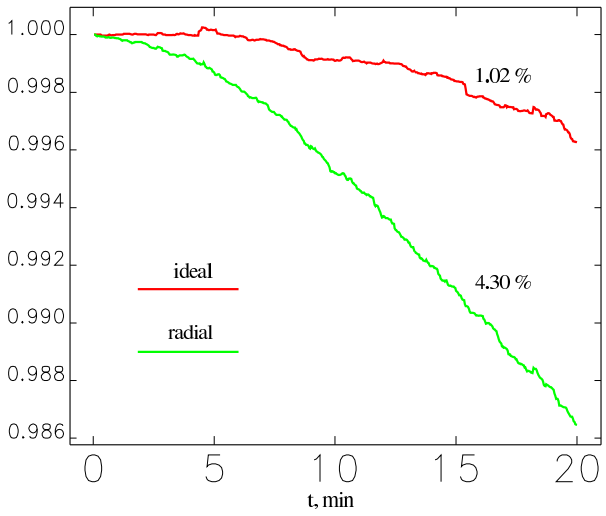

Figure 2: Normalized intensity. $r_b = 3.5\sigma_y$.

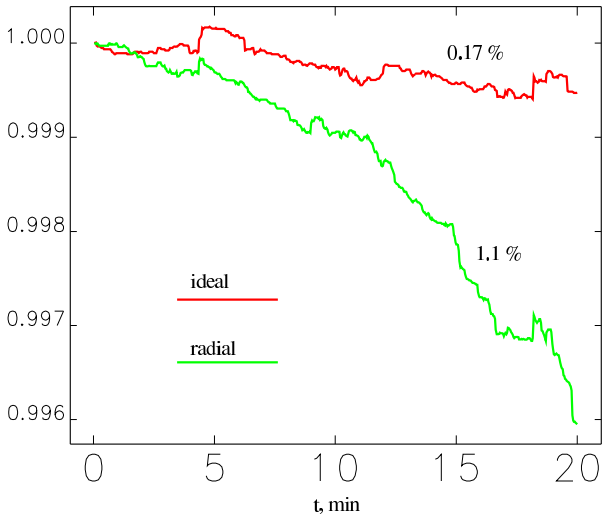

Figure 3: Normalized intensity. $r_b = 3.75\sigma_y$.

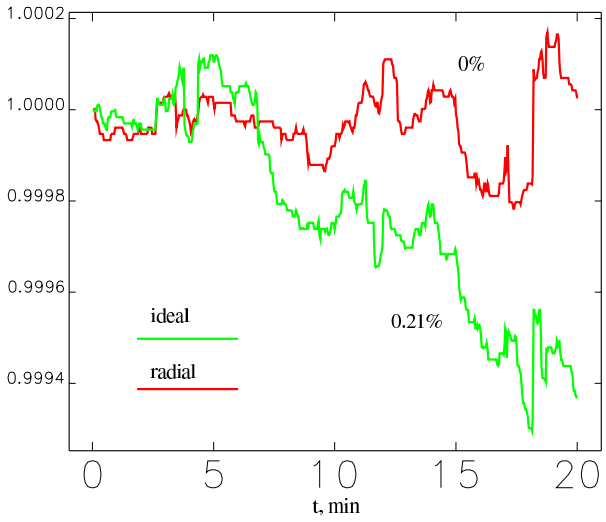

Figure 4: Normalized intensity. $r_b = 4.0\sigma_y$.

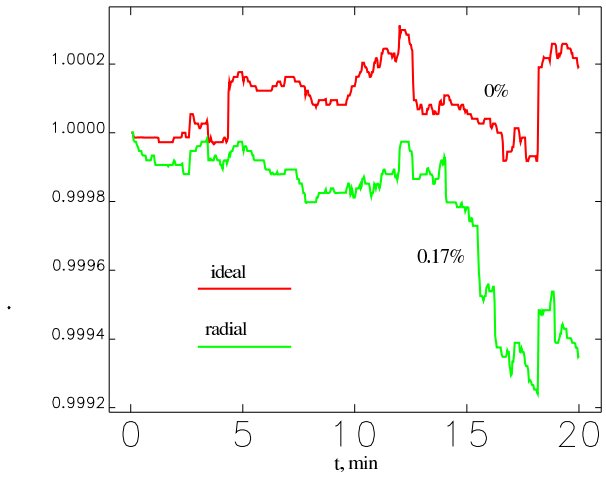

Figure 5: Normalized intensity. $r_b = 4.5\sigma_y$.

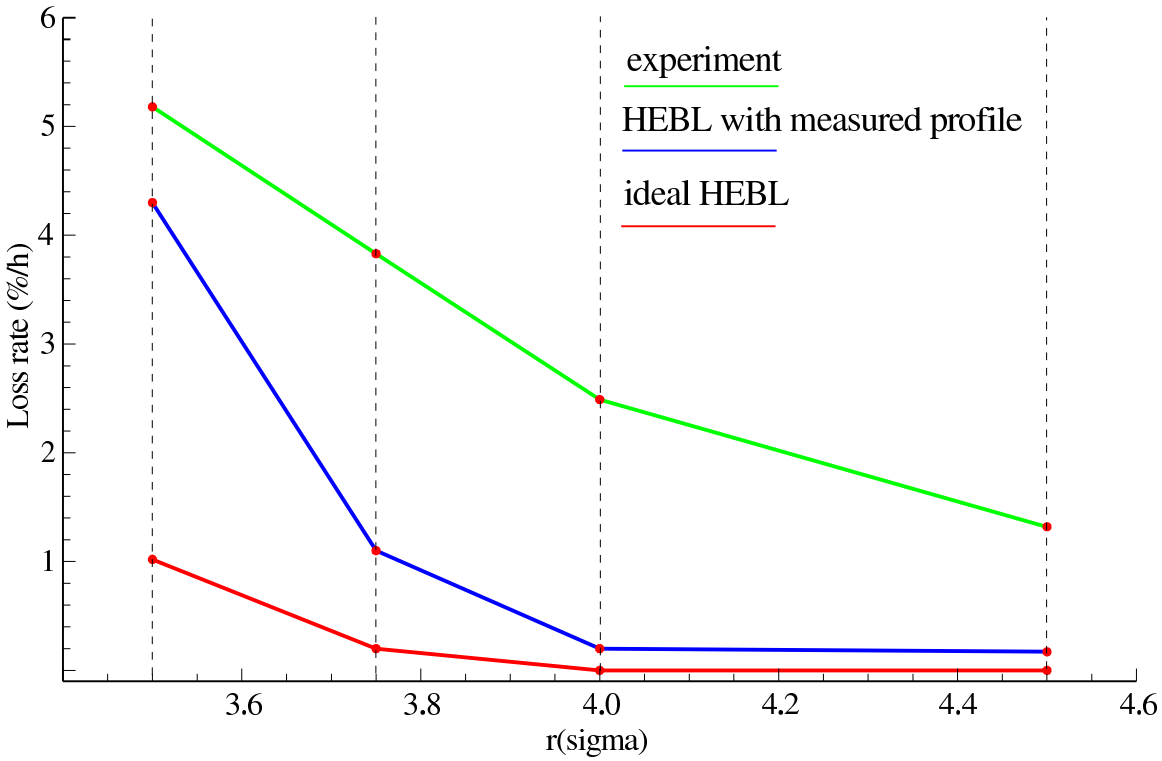

Figure 6: Loss rate vs HEBL radius.

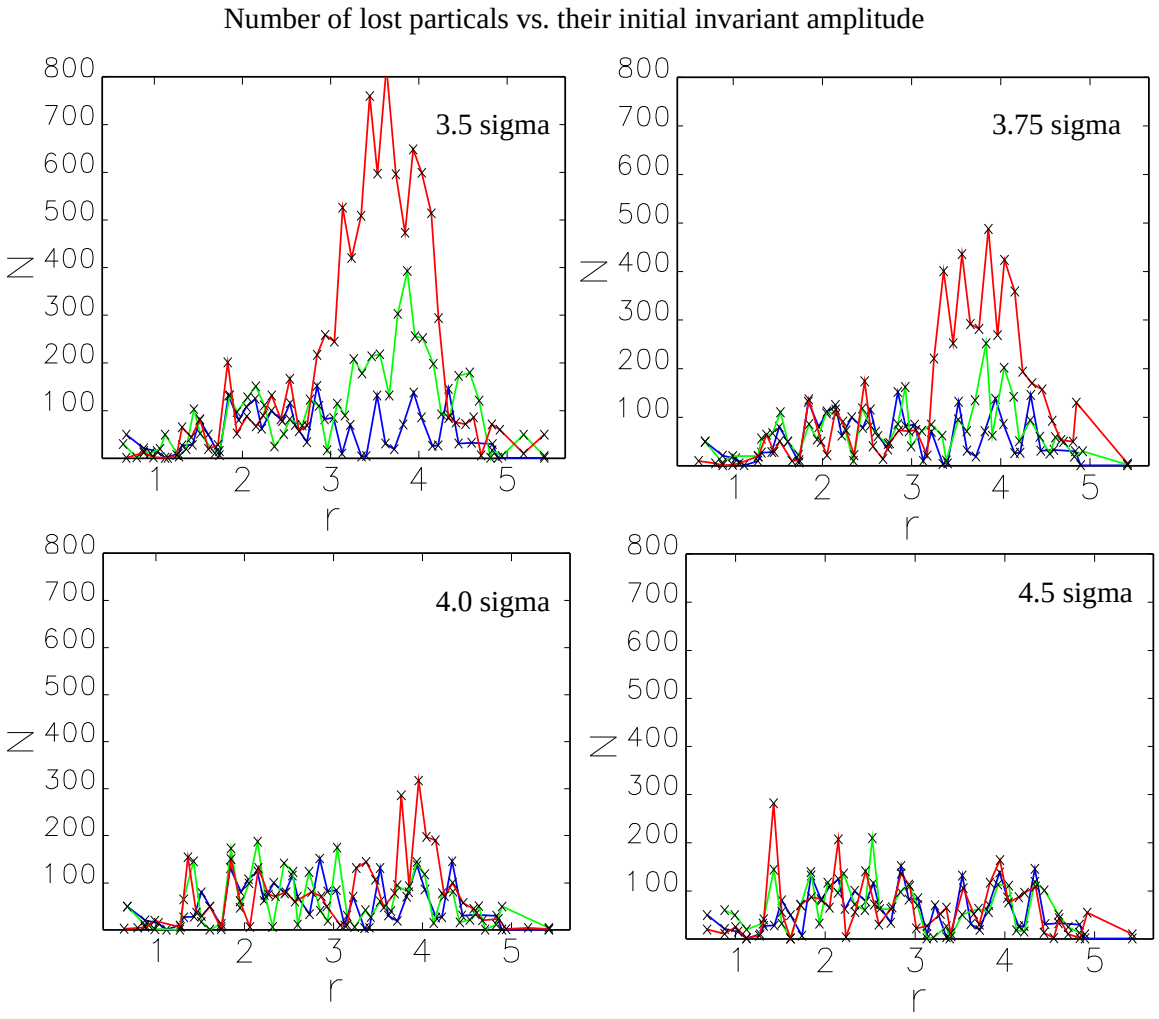

Figure 7: Number of lost particles versus amplitude. $r = \sqrt{X^2 + Y^2}$, $X^2 = x^2 + p_x^2$, $Y^2 = y^2 + p_y^2$.